

Category 5 - Best Building Project – Specialty Contractor (\$2 - \$6 Million)

Contractor: Industrial Contractors/Managers, Inc. (ICM Colorado)

Project Name: Upgrading the MolsonCoors cooling water system while maintaining operations during COVID-19

It's not every day that you start a construction project at the beginning of a pandemic, but that's exactly what ICM did when they were contracted to help the MolsonCoors Golden brewery move their cooling towers and evaporative condensers from ponds outside their facility to the roof of the brewery in Golden, Colorado - a project that was completed in just three months during the height of the COVID-19 pandemic. Despite new safety measures that were quickly put into place, coupled with exposure to rain, snow and wind, the \$3 million, 25-person project was completed on time and on budget, all while keeping the brewery operational so that no revenue was lost to the client.

Moving the cooling water from ponds to the roof was necessary so that MolsonCoors could begin construction on a potentially larger modernization project that will better utilize the land where the ponds were located and enable the brewery to modernize its operations, which is slated to start in 2021. The move also helped MolsonCoors upgrade the way they condensed their NH3 refrigeration to a more modern method of refrigeration.

The project was challenging due to many aspects, starting with the fact that the new water towers weighed 1.4 million pounds when operational, so the bulk of the project involved reinforcing existing interior steel columns and exterior concrete panels while also adding a new level of structural steel to the roof of the building so that it could sustain the weight of the new cooling towers, all without interrupting day-to-day operations. This was accomplished by self-performing almost all aspects of the process, enabling it to be completed more efficiently and at less cost.

To self-perform the project, ICM produced all of the steel in-house at their prefabrication shops, scheduled their own deliveries, erected the steel, performed all reinforcement, removed and reinstalled interior walls and finishes, and managed a 450-ton crane by themselves, all of which

helped the project stay on time and on budget. This also enabled ICM to sequence the project so that after the first phase of steel was erected, additional steel was easily fed to the roof continually from there.

Producing all the steel in-house was possible due to ICM's two fabrication shops, which are both AISC certified, which means they have to meet stringent quality standards. Prefabrication helped make the project more cost efficient and safer because it was done offsite and then transported and assembled at the jobsite. This enabled a large portion of construction to happen in a quiet, controlled environment where there were fewer interruptions, fewer people, and thus less risk of being exposed to COVID-19. This helped increase the overall safety of the project and reduce the cost, as prefabrication takes fewer people to produce and install.

Prefabrication is also credited with helping the project be more environmentally friendly because it required ICM to extensively pre-plan so materials were accurately measured, leaving less waste. The prefabrication shops also have access to the outdoors, which enabled workers to work outside with open air circulation, an additional safety benefit that helped mitigate against exposure to COVID-19.

One of the biggest risks of the project came from the fact that the new cooling towers sat above a high voltage substation that provided power to roughly $\frac{2}{3}$ of the Golden Brewery. Many different precautions were taken to prevent water leaks from getting into the power room, which included tenting over the roof penetrations and electrical gear, installing water catches and gutters on the underside of the roof, along with having snow and water removal crews on standby to keep as much water away from the penetrations as possible.

Weather was another challenge, particularly when it came to the 450-ton crane in the parking lot, which was used to transport and erect the steel onto the 85-foot roof. Employees had to provide significant traffic control for brewery personnel and actively monitor the crane, as it could only operate in less than 15 mph winds. Since the brewery is located at the base of the Colorado foothills where wind is common, there were many times when it was simply too dangerous to

operate it. Rain and snow were also problematic, given that the roof is an open environment and thus constantly exposed to unpredictable Colorado spring weather.

Another challenge of the project was keeping the brewery operational while completing the project in a short timeframe, all in the midst of COVID-19. This was done by immediately implementing safety measures and managing the entrance of the jobsite so that staff could easily enter and exit without impacting the project. As a culture inherently built on safety, ICM was able to stagger shifts to enable workers to social distance; masks and hand sanitizer were handed out each day, despite the difficulty in finding them in the beginning of the pandemic; and tools were sanitized at the end of each day. Since the jobsite was at the entrance to the brewery, four ICM workers carefully managed visitor and staff foot traffic for both health concerns and to ensure that the jobsite didn't impact day-to-day operations.

The new safety measures were able to be implemented quickly because ICM already had an existing safety program in place, which helps educate employees and encourage them to be compliant through positive reinforcement. At least once each week, employees (including junior staff) would do an on-site audit, documenting everything that could be a threat to them and the team, which now also included COVID-19 precautions. The program is focused on mentoring and training, helping to create a culture of safety so that employees are safe for themselves and for each other. While this added additional time and responsibilities to the project, the safety measures helped ensure that there were no illnesses or injuries while on the jobsite.

From an innovation's standpoint, ICM had to create a special lift plan for the crane so that materials could get to the 85-foot roof without creating a disruption for staff. This was accomplished by developing a flight path for all material, having multiple flaggers outside and inside the building to ensure no one was in the path, and working with MolsonCoors to perform lifts at times that had the least impact to their staff.

Excellence in client service can best be demonstrated by a testimonial from Greg Miller, principle engineer at MolsonCoors who said, "ICM is very adept at prefabrication, ironworking and millwrights, and they put these skills to great use on this project, in addition to helping us

think through issues that arose that we didn't have the manpower to solve ourselves," said Greg Miller, principle engineer at MolsonCoors. "This included coming up with a traffic and fencing plan, getting porta johns when it was deemed unsafe to allow workers inside the brewery due to COVID-19, and identifying and fixing structural issues on the fly. Their ability to pivot in the face of obstacles and challenges helped the project be completed on time and on budget."











